

US-PAT-NO: 6711299

DOCUMENT-IDENTIFIER: US 6711299 B2

TITLE: Wavelet transformation of
dithered quantized/reduced
color pixels for color bit
depth image compression and
decompression

DATE-ISSUED: March 23, 2004

INVENTOR-INFORMATION:

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APPL-NO: 09/ 727241

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PARENT-CASE:

This is a divisional of application Ser. No.
09/038,562, filed Mar. 11,
1998.

This application claims the benefit of U.S.
Provisional Application No.
60/040,241, filed Mar. 11, 1997, System and Method
for Still Image
Compression, which is incorporated herein by

reference.

US-CL-CURRENT: **382/240**, 382/166

ABSTRACT:

A wavelet-based image compression system and method are presented. Compression is accomplished by performing a wavelet transformation of an input digital image. The resulting wavelet coefficients are compared to a threshold value. Coefficients falling below the threshold are discarded. The remaining coefficients are quantized. The quantized coefficients are then compressed using an entropy encoding technique, such as arithmetic, run length, or Huffman encoding, or a combination of Huffman and run length encoding. The wavelet transform can be an integer wavelet transform derived using a lifting scheme or correction method, while the quantization scheme can be sub-band oriented. Input color image pixels can be reduced using a color table. In addition, color pixels can be transformed between color spaces prior to wavelet transformation.

4 Claims, 13 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 6

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Detailed Description Text - DETX (204):

The non-uniform compression feature can be incorporated in to the method of FIG. 8 as follows. Steps 100-102 are performed. Then, the user creates bitmap matrices defining the partitioned areas. Each area is then wavelet transformed. Different quantizations are then applied to the different areas according to the transformed matrices obtained above.

Detailed Description Text - DETX (211):

Using the interactive method, a user can indicate how many blocks they want to divide the image into and how many pixels they want for overlap. To compress an image according to this approach, the size of the source image is first detected. Then, the user's choice for the number of blocks and number of overlapping pixels is entered. Next, the image is divided into the pieces according to the user's choice and the size of the image. Finally, the individual pieces are compressed according to one of the methods disclosed herein.

Current US Original Classification - CCOR (1):

382/240